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QUICK MANUAL

AIR CONDITIONER

Please read this installation manual completely before installing the product.
Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
Please retain this installation manual for future reference after reading it thoroughly.

Air-to-Water Heat Pump
THERMA V
Original instruction

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1. Safety Precautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.

■ Be sure to read before installing the unit.
■ Be sure to observe the cautions specified here as they include important items related to safety.
■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠ **WARNING**	This symbol indicates the possibility of death or serious injury.
⚠ **CAUTION**	This symbol indicates the possibility of injury or damage to properties only.

■ Meanings of symbols used in this manual are as shown below.

	**Be sure not to do.**
	**Be sure to follow the instruction.**

⚠ WARNING

Installation

- Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.
  - There is risk of fire or electric shock.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized Service Center.
  - There is risk of fire or electric shock.
- Always ground the unit.
  - There is risk of fire or electric shock.
- Install the panel and the cover of control box securely.
  - There is risk of fire or electric shock.
- Always install a dedicated circuit and breaker.
  - Improper wiring or installation may cause fire or electric shock.
- Use the correctly rated breaker or fuse.
  - There is risk of fire or electric.
- Do not modify or extend the power cable.
  - There is risk of fire or electric shock.
- Do not install, remove, or reinstall the unit by yourself (customer).
  - There is risk of fire, electric shock, explosion, or injury.

- For antifreeze, always contact the dealer or an authorized service center.
  - Almost the antifreeze is a toxic product.
- For installation, always contact the dealer or an Authorized Service Center.
  - There is risk of fire, electric shock, explosion, or injury.
- Do not install the unit on a defective installation stand.
  - It may cause injury, accident, or damage to the unit.
- Be sure the installation area does not deteriorate with age.
  - If the base collapses, the unit could fall with it, causing property damage, unit failure, and personal injury.
- Do not install the water pipe system as Open loop type.
  - It may cause failure of unit.
- Use a vacuum pump or inert (nitrogen) gas when doing leakage test or purging air. Do not compress air or oxygen and do not use flammable gases.
  - There is the risk of death, injury, fire or explosion.
- Make sure the connected condition of connector in product after maintenance.
  - Otherwise, it may cause product damage.
- Do not touch leaked refrigerant directly.
  - There is risk of frostbite.

Operation

- Take care to ensure that power cable could not be pulled out or damaged during operation.
  - There is risk of fire or electric shock.
- Do not place anything on the power cable.
  - There is risk of fire or electric shock.
- Do not plug or unplug the power supply plug during operation.
  - There is risk of fire or electric shock.
- Do not touch (operate) the unit with wet hands.
  - There is risk of fire or electric shock.
- Do not place a heater or other appliances near the power cable.
  - There is risk of fire or electric shock.
- Do not allow water to run into electric parts.
  - There is risk of fire, failure of the unit, or electric shock.

- Do not store or use flammable gas or combustibles near the unit.
  - There is risk of fire or failure of unit.
- Do not use the unit in a tightly closed space for a long time.
  - It may cause damage to the unit.
- When flammable gas leaks, turn off the gas and open a window for ventilation before turning the unit on.
  - There is risk of explosion or fire.
- If strange sounds, or small or smoke comes from unit, turn the breaker off or disconnect the power supply cable.
  - There is risk of electric shock or fire.
- Stop operation and close the window in storm or hurricane. If possible, remove the unit from the window before the hurricane arrives.
  - There is risk of property damage, failure of unit, or electric shock.
- Do not open the front cover of the unit while operation. (Do not touch the electrostatic filter, if the unit is so equipped.)
  - There is risk of physical injury, electric shock, or unit failure.
- Do not touch any electric part with wet hands. you should be power off before touching electric part.
  - There is risk of electric shock or fire.
- Do not touch refrigerant pipe and water pipe or any internal parts while the unit is operating or immediately after operation.
  - There is risk of burns or frostbite, personal injury.
- If you touch the pipe or internal parts, you should be wear protection or wait time to return to normal temperature.
  - Otherwise , it may cause burns or frostbite, personal injury.
- Turn the main power on 6 hours ago before the product starting operation.
  - Otherwise, it may cause compressor damage.
- Do not touch electric parts for 10 minutes after main power off.
  - There is risk of physical injury, electric shock.
- The inside heater of product may operate during stop mode. It is intended to protect the product.
- Be careful that some part of the control box are hot.
  - There is risk of physical injury or burns.
- When the unit is soaked (flooded or submerged), contact an Authorized Service Center.
  - There is risk of fire or electric shock.

- Be cautious that water could not be poured to the unit directly.
  - There is risk of fire, electric shock, or unit damage.
- Ventilate the unit from time to time when operating it together with a stove, etc.
  - There is risk of fire or electric shock.
- Turn the main power off when cleaning or maintaining the unit.
  - There is risk of electric shock.
- Take care to ensure that nobody could step on or fall onto the unit.
  - This could result in personal injury and unit damage.
- For installation, always contact the dealer or an Authorized Service Center.
  - There is risk of fire, electric shock, explosion, or injury.
- If the unit is not used for long time, we strongly recommend not to switch off the power supply to the unit.
  - There is risk of water freezing.

⚠ CAUTION

Installation

- Always check for gas (refrigerant) leakage after installation or repair of unit.
  - Low refrigerant levels may cause failure of unit.
- Keep level even when installing the unit.
  - To avoid vibration or water leakage.
- Use two or more people to lift and transport the unit.
  - Avoid personal injury.

Operation

- Do not use the unit for special purposes, such as preserving foods, works of art, etc.
  - There is risk of damage or loss of property.
- Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.
  - There is risk of fire, electric shock, or damage to the plastic parts of the unit.
- Do not step on or put anything on the unit.
  - There is risk of personal injury and failure of unit.
- Use a firm stool or ladder when cleaning or maintaining the unit.
  - Be careful and avoid personal injury.
- Do not turn on the breaker or power under condition that front panel, cabinet, top cover, control box cover are removed or opened.
  - Otherwise, it may cause fire, electric shock, explosion or death.

According to IEC 660335-1

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

According to EN 660335-1

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understnd the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

2. General Information

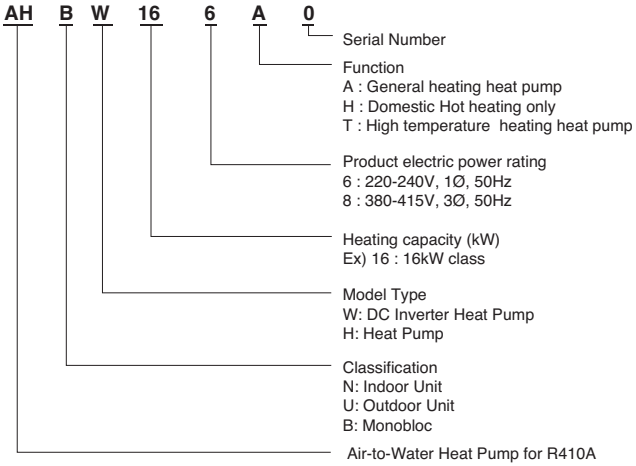
With advanced inverter technology, THERMAV is suitable for applications like under floor heating, under floor cooling, and hot water generation. By Interfacing to various accessories user can customize the range of the application.

In this chapter, general information of THERMAV is presented to identify the installation procedure. Before beginning installation, read this chapter carefully and find helpful information on installation.

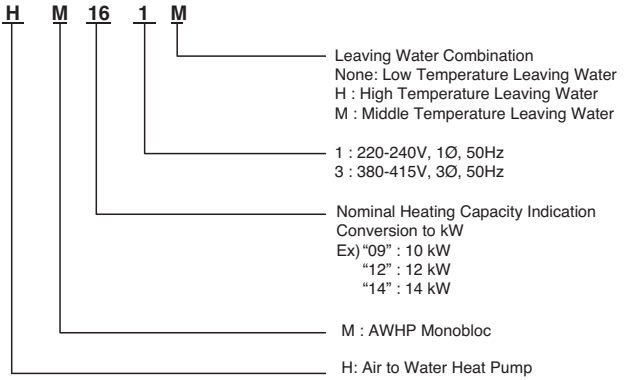
Model Information

Model number nomenclature

Global Model Name



Europe Model Name



- Additional Information : serial number is refer to the barcode on the product.
- Max allowable pressure High side :
  4.2 Mpa / Low side : 2.4 Mpa
- Refrigerant : R410A

Airborne Noise Emission

The A-weighted sound pressure emitted by this product is below 70 dB.
** The noise level can vary depending on the site.
The figures quoted are emission level and are not necessarily safe working levels.
Whilst there is a correlation between the emission and exposure levels, this cannot be used reliably to determine whether or not further precautions are required.
Factor that influence the actual level of exposure of the workforce include the characteristics of the work room and the other sources of noise, i.e. the number of equipment and other adjacent processes and the length of time for which an operator exposed to the noise. Also, the permissible exposure level can vary from country to country.
This information, however, will enable the user of the equipment to make a better evaluation of the hazard and risk.

Limiting concentration

Limiting concentration is the limit of Freon gas concentration where immediate measures can be taken without hurting human body when refrigerant leaks in the air. The limiting concentration shall be described in the unit of kg/m^3 (Freon gas weight per unit air volume) for facilitating calculation.

Limiting concentration: 0.44kg/m^3(R410A)

■ Calculate refrigerant concentration

$$\text{Refrigerant concentration (kg/m}^3\text{)} = \frac{\text{Total amount of replenished refrigerant in refrigerant facility (kg)}}{\text{Capacity of smallest room where indoor unit is installed (m}^3\text{)}}$$

⚠ CAUTION

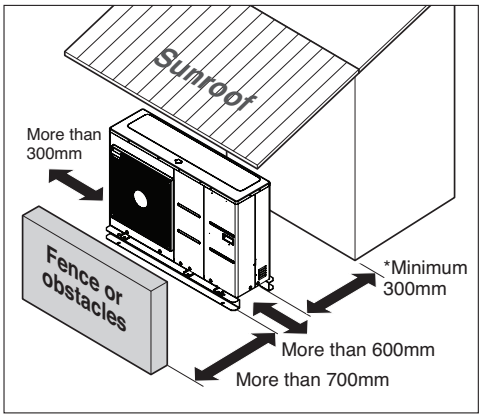
Be very careful while carrying the unit.

- Do not have only one person carry the unit if it is more than 20 kg (44.1 lbs).
- PP bands are used to pack some products. Do not use them as a mean for transportation because they are dangerous.
- Tear plastic packaging bag and scrap it so that children cannot play with it. Otherwise plastic packaging bag may suffocate children to death.
- When carrying the unit, be sure to support it at 4-points. Carrying and lifting the unit with 3-point support may make it unstable, resulting in a fall.

Installation Conditions

General considerations

- If a sunroof is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the heat exchanger is not restricted.
- Ensure that the spaces indicated by arrows around front, back and side of the unit.
- Do not place animals and plants in the path of the warm air.
- Take the weight of the unit into account and select a place where noise and vibration are minimum.
- Select a place so that the warm air and noise from the unit do not disturb neighbors.
- The surface of the ground or the structure must be strong enough to bear the weight of the unit.



* : Please secure the space to install the shut-off valve and strainer.

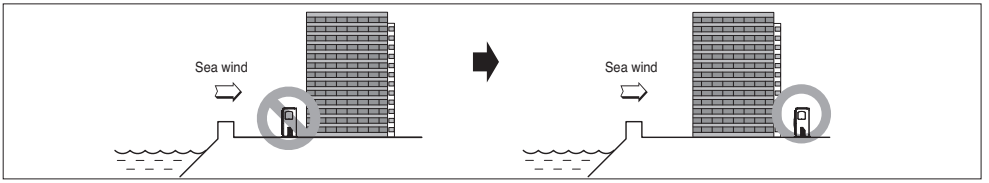
Installation at Seaside

⚠ CAUTION

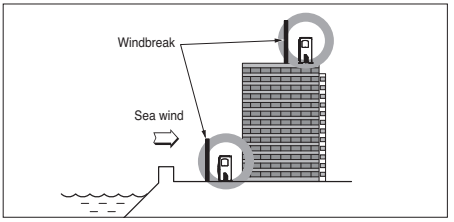
1. Unit should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
2. Do not install the unit where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the unit. Corrosion, particularly on the condenser and evaporator fins, could cause unit malfunc-tion or inefficient performance.
3. If unit is installed close to the seaside, it should avoid direct exposure to the sea wind. Otherwise itneeds additional anticorrosion treatment on the heat exchanger.

Selecting the location

1) If the unit is to be installed close to the seaside, direct exposure to the sea wind should be avoided. Install the unit on the opposite side of the sea wind direction.



2) In case, to install the unit on the seaside, set up a windbreak not to be exposed to the sea wind.



- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150% of the unit.
- It should be keep more than 700 mm of space between unit and the windbreak for easy air flow.

3) Select a well-drained place.

1. If you can't meet above guide line in the seaside installation, please contact your supplier for the additional anticorrosion treatment.
2. Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water

Seasonal Wind and Cautions in Winter

- Sufficient measures are required in a snow area or severe cold area in winter so that unit can be operated well.
- Get ready for seasonal wind or snow in winter even in other areas.
- Install a suction and discharge duct not to let in snow or rain.
- Install the unit not to come in contact with snow directly. If snow piles up and freezes on the air suction hole, the system may malfunction. If it is installed at snowy area, attach the hood to the system.
- Install the unit at the higher installation console by 500mm than the average snowfall (annual average snowfall) if it is installed at the area with much snowfall.
- Where snow accumulated on the upper part of the unit by more than 100mm, always remove snow for operation.

1. The height of H frame must be more than 2 times the snowfall and its width shall not exceed the width of the unit. (If width of the frame is wider than that of the unit, snow may accumulate.)
2. Don't install the suction hole and discharge hole of the unit facing the seasonal wind.

Connecting Cables

General consideration

Followings should be considered before beginning unit wiring.

- Field-supplied electrical components such as power switches, circuit breakers, wires, terminal boxes, etc should be properly chosen with compliance with national electrical legislation or regulation.
- Make it sure that supplied electricity is enough to operate the unit, electric heater, water tank heater, etc. The capacity of fuse also selected according to the power consumption.
- The main electricity supply should be dedicated line. Sharing main electricity supply with other devices such as washing machine or vacuum cleaner is not permitted.

⚠ CAUTION

- Before starting wiring job, the main electricity supply should be turned off until wiring is completed.
- When adjusting or changing wiring, the main electricity supply should be turned off and ground wire should be connected securely.
- Installation place should be free from the attack of wild animal. For example, mice's wire attacking or frog's entering into the unit may cause critical electrical accident.
- All power connections should be protected from dew condensation by thermal insulation.
- All electrical wiring should comply with national or local electrical legislation or regulation.
- The ground should be connected exactly. Do not earth the unit to the copper pipe, steel fence at the veranda, city water outlet pipe, or any other conductivity materials.
- Fix all cable using cord clamp tightly. (When cable is not fixed with cord clamp, use additionally supplied cable ties.)

Types of the cables

Power supply cable (Include earth)	Unit (spec)	AHBW036H0	AHBW056A0/ 076A0/096A0	AHBW126A0/ 146A0/166A0	AHBW128A0/ 148A0/168A0
Unit	No *mm² (H07RN-F)	3 * 1.0	3 * 1.5	3 * 2.5	5 * 1.0
Heater	No *mm² (H07RN-F)	-	3 * 2.5	3 * 4.0	5 * 1.5

Safety Breaker

Current Recommended Fuses	AHBW036H0	AHBW056A0/ 076A0/096A0	AHBW126A0/ 146A0/166A0	AHBW128A0/ 148A0/168A0
A	15	20	40	20

⚠ WARNING

- Earth should be connected.
- If grounding is not properly done, there is a risk of electric shock. Grounding must be done by a qualified technician.
- Consider the surrounding conditions(surrounding temperature, direct sunlight, rain water, etc.) when wiring the cable.
- The thickness of the power cable is the minimum thickness of metal conductor cable. Use thicker cable considering the voltage drop.

3. Maintenance and Service

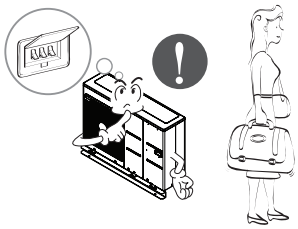
Maintenance Activities

In order to ensure optimal availability of the unit, a number of checks and inspections on the unit and the field wiring have to be carried out at regular intervals, preferably yearly. This maintenance should be carried out by your local agreed technician.

When the unit is not going....

⚠ CAUTION

- If the product is not used for long time, we strongly recommend NOT TO SWITCH OFF THE POWER SUPPLY to the product.
- If power is not supplied, some special product-protecting actions (such as water pump anti-locking) will not performed.




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